IN THE CLAIMS

Please rewrite the claims as indicated below.

1.   (Currently Amended) A method of performing vision processing comprising:

producing a depth map of a scene proximate a platform, wherein the depth map is based on an assumed ground plane;

identifying an actual ground plane using the depth map; ~~and~~

compensating the depth map for differences between the assumed ground plane and the actual ground plane; and

<u>removing the actual ground from the depth map.</u>

2.   (Original) The method of claim 1 further including the step of comparing the depth map to a plurality of templates to identifying a match between the depth map and at least one template.

3.   (Original) The method of claim 2 further including the step of adjusting a parameter of the platform in response to a match.

4.   (Previously Presented) The method of claim 2 wherein a parameter of the vehicle comprises at least one parameter selected from the group of: an air bag deployment parameter, a seatbelt parameter, a vehicle height parameter, and a vehicle velocity and/or acceleration control parameter.

5.   (Original) The method of claim 2 wherein the comparing step includes determining a difference between each pixel in the depth map and each similarly positioned pixel in a template, and determining that a pixel is a match if the difference at each pixel is less than a predefined amount.

6.   (Original) The method of claim 2 further comprising:

accessing at least one template from a database comprising a plurality of templates.

Page 2

7.   (Original) The method of claim 6 wherein the plurality of templates represent objects at varying positions and poses relative to the platform.

8.   (Original) The method of claim 6 wherein at least one template in the plurality of templates is a model of a vehicle.

9   (Original) The method of claim 6 wherein at least one template in the plurality of templates is a model of a pedestrian.

10.   Cancelled.

11.   (Previously Presented) A method of performing vision processing comprising:
        stereo imaging a scene about a platform to produce stereo image data;
        producing a map of data from the stereo image data, wherein the map is based on an assumed ground plane;
        identifying an actual ground plane using the map;
        compensating the map for differences between the actual ground plane and the assumed ground plane; and
        removing the actual ground plane from the map.

12.   (Original) The method of claim 11 further including the step of comparing a plurality of templates to the map to identifying a match between the map and at least one template.

13.   (Original) The method of claim 12 further including the step of adjusting a parameter of the platform in response to a match.

14.   (Previously Presented) The method of claim 13 wherein the parameter of a vehicle comprises at least one parameter selected from the group of: an air bag

Page 3

deployment parameter, a seatbelt parameter, a vehicle height parameter, and a vehicle velocity and/or acceleration control parameter.

15.   (Original) The method of claim 12 wherein the comparing step includes determining a difference between each pixel in the map and each similarly positioned pixel in a template, and determining that a pixel is a match if the difference at each pixel is less than a predefined amount.

16   (Original) The method of claim 13 further including accessing at least one template from a database comprising a plurality of templates.

17   (Currently Amended) A collision avoidance system comprising:
        a collision detection system comprising:
        a stereo camera pair for producing imagery of a scene;
        a stereo image preprocessor for preprocessing said imagery;
        a map generator for producing from said preprocessed imagery a map referenced to an assumed ground plane; and
        a target processor for determining the actual ground plane from said map and removing the actual ground plane from the map.

18.   Cancelled.

19.   (Original) A system according to claim 17, wherein the collision detection system further includes a collision detector for determining if a collision is imminent;
        wherein said collision detector detects a potential threat in said map;
        wherein said collision detector estimates size, position, and velocity of said detected potential threat;
        wherein said collision detector performs a trajectory analysis of said detected potential threat using said estimated position and said estimated velocity;
        wherein said collision detector predicts a collision based on said trajectory analysis; and

Page 4

wherein said collision detector determines if a collision is imminent based on said collision prediction and on said estimated size.

20.   (Original) The system according to claim 19 further including a secondary sensor that provides said collision detector with information regarding the scene.

21   Cancelled.

22   (Previously Presented) A computer readable medium storing a vision system program that controls a computer to:

produce a depth map from input imagery;

determine an actual ground plane from said depth map;

correct the depth map based on the actual ground plane;

detect a potential threat in said corrected depth map;

estimate a size of said detected potential threat;

estimate a position of said detected potential threat;

estimate a velocity of said detected potential threat;

perform a trajectory analysis of said detected potential threat using said estimated position and said estimated velocity;

perform a collision prediction based on said trajectory analysis; and

determine if a collision is imminent based on said collision prediction and on said estimated size of said potential threat.

23.   (Previously Presented) The computer readable medium of claim 22 that further controls a computer to remove the actual ground from the corrected depth map.

24.   (Original) A collision avoidance system comprising:

a collision detection system comprising:

a stereo camera pair for producing imagery of a scene;

a stereo image preprocessor for preprocessing said imagery;

Page 5

a map generator for producing from said preprocessed imagery a map referenced to an assumed ground plane; and

a target processor for determining the actual ground plane from said map and for removing that ground plane from said map.

25   (Original) A computer readable medium storing a vision system program that controls a computer to:

produce a depth map from input imagery;

determine an actual ground plane from said depth map; and

removing the actual ground from the depth map.

26-27. Cancelled.

28.   (Currently Amended) ~~The method of claim 27,~~ A method of performing vision processing comprising:

producing a depth map of original stereo images of a scene proximate a platform, wherein the depth map is based on an assumed ground plane;

identifying an actual ground plane using the depth map; and

correcting the original stereo images for differences between the assumed ground plane and the actual ground plane;

wherein the technique of correction is a vertical translation of the original stereo images; and

wherein the corrected stereo images are processed to refine the estimated height and width of a target.

29-30. Cancelled.